

CLAIMS

The invention claimed is:

- 5 1. A device comprising:
a network interface for coupling to a network; and
a processor coupled with the network interface, wherein the processor is
adapted to
receive first packets for asynchronous retransmission to a network destination;
10 open a first switched virtual circuit that accommodates the network
destination;
retransmit the first packets through the first switched virtual circuit;
receive second packets for asynchronous retransmission to the network
destination after retransmitting the first packets;
15 open a second switched virtual circuit to accommodate the network
destination; and
retransmit the second packets through both the first and the second switched
virtual circuits.
- 20 2. The device of claim 1, wherein the processor is further adapted to:
receive third packets for asynchronous retransmission to the network
destination after retransmitting the second packets;
determine a third rate of receiving the third packets;
determine a third bandwidth from the third rate; and
25 if the third bandwidth is less than a second threshold, close one of the first and
second switched virtual circuits, and then retransmit the third packets through only the
open one of the first and second switched virtual circuits.
- 30 3. The device of claim 1, wherein the processor is further adapted to:
determine a second rate of receiving the second packets; and
determine a second bandwidth from the second rate,
wherein the second switched virtual circuit is opened only if the second
bandwidth exceeds a first threshold.

4. The device of claim 3, wherein
the first switched virtual circuit has the first bandwidth, and
the first threshold is a preset fraction of the first bandwidth.

5 5. The device of claim 4, wherein the processor is further adapted to:
determine a first rate of receiving the first packets; and
determine the first bandwidth from the first rate.

10 6. The device of claim 1, wherein
the first and second switched virtual circuits are administered by a lower
network layer, and
the first and second switched virtual circuits behave as a single pipe from a
viewpoint of an upper network layer which is on top of the lower network layer.

15 7. A device comprising:
means for receiving first packets for asynchronous retransmission to a network
destination;
means for opening a first switched virtual circuit that accommodates the
network destination;
20 means for retransmitting the first packets through the first switched virtual
circuit;
means for receiving second packets for asynchronous retransmission to the
network destination after retransmitting the first packets;
means for opening a second switched virtual circuit to accommodate the
25 network destination; and
means for retransmitting the second packets through both the first and the
second switched virtual circuits.

30 8. The device of claim 7, further comprising:
means for receiving third packets for asynchronous retransmission to the
network destination after retransmitting the second packets;
means for determining a third rate of receiving the third packets;
means for determining a third bandwidth from the third rate; and

if the third bandwidth is less than a second threshold, means for closing one of the first and second switched virtual circuits, and then retransmitting the third packets through only the open one of the first and second switched virtual circuits.

- 5 9. The device of claim 7, further comprising:
 means for determining a second rate of receiving the second packets; and
 means for determining a second bandwidth from the second rate,
 wherein the second switched virtual circuit is opened only if the second
 bandwidth exceeds a first threshold.

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10. The device of claim 9, wherein
 the first switched virtual circuit has a first bandwidth, and
 the first threshold is a preset fraction of the first bandwidth.

- 15 11. The device of claim 10, further comprising:
 determining a first rate of receiving the first packets; and
 determining the first bandwidth from the first rate.

- 20 12. The device of claim 7, wherein
 the first and second switched virtual circuits are administered by a lower
 network layer, and
 the first and second switched virtual circuits behave as a single pipe from a
 viewpoint of an upper network layer which is on top of the lower network layer.

- 25 13. An article comprising: a storage medium, said storage medium having stored
 thereon instructions, that, when executed by at least one device, result in:
 receiving first packets for asynchronous retransmission to a network
 destination;
 opening a first switched virtual circuit that accommodates the network
30 destination;
 retransmitting the first packets through the first switched virtual circuit;
 receiving second packets for asynchronous retransmission to the network
 destination after retransmitting the first packets;

opening a second switched virtual circuit to accommodate the network destination; and

retransmitting the second packets through both the first and the second switched virtual circuits.

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14. The article of claim 13, wherein the instructions further result in: receiving third packets for asynchronous retransmission to the network destination after retransmitting the second packets;

determining a third rate of receiving the third packets;

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determining a third bandwidth from the third rate; and

if the third bandwidth is less than a second threshold, closing one of the first and second switched virtual circuits, and then retransmitting the third packets through only the open one of the first and second switched virtual circuits.

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15. The article of claim 13, wherein the instructions further result in:

determining a second rate of receiving the second packets; and

determining a second bandwidth from the second rate,

wherein the second switched virtual circuit is opened only if the second bandwidth exceeds a first threshold.

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16. The article of claim 15, wherein

the first switched virtual circuit has a first bandwidth, and

the first threshold is a preset fraction of the first bandwidth.

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17. The article of claim 16, wherein the instructions further result in:

determining a first rate of receiving the first packets; and

determining the first bandwidth from the first rate.

18. A method comprising:

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receiving first packets for asynchronous retransmission to a network destination;

opening a first switched virtual circuit that accommodates the network destination;

retransmitting the first packets through the first switched virtual circuit;

receiving second packets for asynchronous retransmission to the network destination after retransmitting the first packets;

opening a second switched virtual circuit to accommodate the network destination; and

5 retransmitting the second packets through both the first and the second switched virtual circuits.

19. The method of claim 18, further comprising:

receiving third packets for asynchronous retransmission to the network destination after retransmitting the second packets;

determining a third rate of receiving the third packets;

determining a third bandwidth from the third rate; and

15 if the third bandwidth is less than a second threshold, closing one of the first and second switched virtual circuits, and then retransmitting the third packets through only the open one of the first and second switched virtual circuits.

20. The method of claim 18, further comprising:

determining a second rate of receiving the second packets; and

determining a second bandwidth from the second rate,

20 wherein the second switched virtual circuit is opened only if the second bandwidth exceeds a first threshold.

21. The method of claim 20, wherein

the first switched virtual circuit has a first bandwidth, and

25 the first threshold is a preset fraction of the first bandwidth.

22. The method of claim 21, further comprising:

determining a first rate of receiving the first packets; and

determining the first bandwidth from the first rate.